

REMARKS

This Amendment is submitted in response to the Office Action mailed on September 23, 2003. Claims 1 and 9 have been amended, and claim 8 has been canceled without prejudice or disclaimer. Claims 1-7, 9 and 10-11 remain in the present application. In view of the foregoing amendments, as well as the following remarks, Applicants respectfully submit that this application is in complete condition for allowance and request reconsideration of the application in this regard.

The title has been amended to reflect the claimed subject matter of the present application and the specification has been amended to correct a typographical error. Applicants have amended the Abstract as requested by Examiner.

Claims 1-6 and 9 stand rejected under 35 U.S.C. §102(e) as being anticipated by Fugere et al., U.S. Patent No. 6,119,895. Claims 1-4, 7 and 8 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Lawing, "Preventing Voids in μ BGA™ Packages", Chip Scale Review, pp. 48-51. Lastly, claims 7, 8, 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fugere et al. taken together with Lawing. While Applicants respectfully traverse these rejections, Applicants have amended independent claims 1 and 9 to more sharply define the present invention over the prior art of record and respectfully request that the rejections be withdrawn.

In particular, Applicants have amended independent claim 1 to recite that the vent connected to the outlet chamber comprises an adjustable vent valve operable to control a vent rate of the outlet chamber to atmosphere. This feature

was the subject of original dependent claim 8. Applicants respectfully submit that the prior art of record fails to teach or suggest the combination of elements recited in independent claim 1 and the rejection should be withdrawn.

Fugere et al. is directed to a dispensing system for dispensing material onto a substrate in a vacuum. The system includes inlet and outlet chambers for allowing workpieces to be moved in and out of a main vacuum chamber while the vacuum chamber is maintained at a prescribed vacuum level. Applicants respectfully submit that Fugere et al. is completely silent with respect to an adjustable vent valve connected to an outlet chamber which is operable to control a vent rate of the outlet chamber to atmosphere as claimed by Applicants.

The only description in Fugere et al. of venting the outlet chamber appears at Column 5, lines 59-62 as follows:

Also, while material is dispensed onto workpiece 142B, the outlet interlock chamber is slowly vented to atmosphere, pneumatic door 126D is opened, and workpiece 142A is removed.

Applicants believe the Lawing reference describes the dispensing system of Fugere et al. and submit that it is completely silent as well with respect to this recited feature. Specifically, Lawing describes that the three chambers incorporate a purge-sensing transducer, purge-valve assembly (also called a "back-to-air" valve), over-pressure valve, pneumatic feed through, electric feed through, proximity sensor, product stop and segmented transport conveyors. (See Page 51).

In the vacuum dispensing system of Lawing, the post dispense or outlet chamber is slowly "vented" to atmosphere so that the dispensed encapsulant is drawn under and around the wire bonded leads and the nubbins (see Page 50).

Accordingly, Applicants respectfully submit that each of Fugere et al. and Lawing taken alone, or in combination with the other prior art of record, fails to teach or suggest an adjustable vent valve connected to an outlet chamber of a vacuum dispensing system wherein the adjustable vent valve is operable to control a vent rate of the outlet chamber to atmosphere as claimed by Applicants in independent claim 1. Accordingly, Applicants respectfully request that the rejection of independent claim 1 be withdrawn.

Independent claim 9 has been amended to recite a "single" vacuum pump fluidly connected to each of the inlet, outlet and dispense chambers for evacuating each of the chambers in a controlled manner. Support for this amendment is found in Applicants' disclosure at Page 12, line 5 through Page 16, line 5 and Figs. 1-2 which describes and illustrates a single vacuum pump (82) fluidly connected to each of the dispense chamber (22), inlet chamber (94) and outlet chamber (118). This feature is not taught or suggested by the prior art of record and the rejection of independent claim 9 should be withdrawn.

Specifically, Fugere et al. describes multiple vacuum pumps for controlling the vacuum levels in each of the dispense, inlet and outlet chambers (see Column 3, lines 43-47, Column 5, lines 22-25 and Column 5, lines 32-35).

The Lawing reference describes that "[e]ach chamber has its own vacuum pumping system" (see Page 51).

Accordingly, Applicants respectfully submit that each of Fugere et al. and Lawing taken alone, or in combination with the other prior art of record, fails to teach or suggest a vacuum encapsulation system having a single pump fluidly connected to each of an inlet, outlet and dispense chamber as claimed by Applicants in independent claim 9 and the rejection should be withdrawn.

Moreover, as claims 2-7 and 10-11 depend from allowable independent claims 1 and 9, respectively, and furthermore as each of these claims recites a combination of elements not taught or suggested by the prior art of record, Applicants submit that these claims are allowable as well.

Conclusion

In view of the foregoing response including the amendments and remarks, this application is submitted to be in complete condition for allowance and early notice to this affect is earnestly solicited. If there is any issue that remains which may be resolved by telephone conference, the Examiner is invited to contact the undersigned in order to resolve the same and expedite the allowance of this application.

Please charge Deposit Account No. 23-3000 in the amount of \$110.00 for the one month extension fee as required by 37 C.F.R. § 1.17(c).



Respectfully submitted,

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